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# A m e n d e d C l a i m s

1. Method for the measuring of structures in a fingerprint or the like, comprising the measuring of chosen characteristics of the surface of the fingerprint using a sensor array comprising a plurality of sensors, being positioned in contact with, or close to, a portion of the surface, comprising measuring of said characteristics in at least one line of measuring points along an elongated portion of the surface at given intervals of time, the sensor array being an essentially one-dimensional array, measuring said characteristics using at least one measuring point being positioned at a chosen distance from said line of measuring points in a direction perpendicular to the axis of the line, moving the surface in relation to the sensor array in a direction perpendicular to the sensor array, so that the measurements are performed at different, or partially overlapping, portions of the surface, and, from said measurements at said line of sensors and said at least one sensor, calculating said movement, combining the measurements of the measured portions of the surface to provide a segmented, two-dimensional representation of said characteristics of the surface.

characterized in that the sensors are capacitive sensors separated from the surface with an insulating film said sensors being adapted to measure variations in the capacitance along the sensor array, and that a varying voltage is applied to the surface to be measured using an electrode being placed separate from the sensor array.

2. Method according to claim 1,  
c h a r a c t e r i z e d in that the measuring points of  
the array are essentially equally spaced along said  
essentially one-dimensional array.

A 3. Method according to claim 1 ~~or 2~~,  
c h a r a c t e r i z e d in the measuring of the relative  
movement of the surface and adjusting the interval of the  
measurements according to movement in order to obtain at  
5 least one measurement of each portion of the surface.

A 4. Method according to claim 1, ~~2, or 3~~,  
c h a r a c t e r i z e d in that each measurement of the  
characteristics of an elongated portion of the surface  
comprises essentially simultaneous measuring of said  
10 characteristics along at least two lines of measuring  
points, one of which comprising said at least one measuring  
point,

each line of measuring points being shifted in the  
longitudinal direction with a distance not equal to the  
15 distance between the measuring points, the sensor array  
comprising two or more essentially parallel lines of  
essentially equally spaced sensors, preferably shifted in  
the longitudinal direction of the sensor array.

*claim 4*  
A 5. Method according to ~~one of the preceding claims~~,  
20 c h a r a c t e r i z e d in that the movement is measured  
by correlating the measurements from different measuring  
lines in order to find the time lapse or spatial shift  
between the similar structures at different lines of  
measuring points.

25 6. Apparatus for measuring structures in a fingerprint or  
the like, comprising a sensor array adapted to be positioned  
close to, or in contact with, the surface of the  
fingerprint, the sensor array being adapted to measure  
chosen characteristics of the surface, e.g. by measuring  
30 capacitance or resistivity, at a plurality of positions,  
the sensor array being an essentially one-dimensional  
array comprising at least one line of sensors, adapted to  
measure said characteristics at chosen intervals of time,  
the surface having a relative movement in relation to the  
35 sensor array, with a direction essentially perpendicular to  
the array,

and the apparatus comprises at least one sensor being

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positioned at a chosen distance from said line of sensors in a direction perpendicular to said line,

and the apparatus comprising means for combining the measurements at the different time intervals to obtain a segmented, two-dimensional representation of the characteristics of the surface.

characterized in that the sensors are capacitive sensors adapted to measure variations in the capacitance along the sensor array,

and in that voltage supply means for applying a voltage varying with time to the surface to be measured are placed separate from the sensor array, and that a thin insulator separates the conductors in the sensor array from the surface to be measured, the sensors essentially measuring the capacitive coupling through the insulating layer, between the surface to be measured and the conductors.

7. Apparatus according to claim 6, characterized in that the essentially one-dimensional sensor array comprises two or more parallel lines of essentially equally spaced sensors, said at least one sensor being comprised in said array.

8. Apparatus according to claim 7, characterized that said sensor lines are shifted in the longitudinal direction of the sensor array with a distance not equal to the distance between the sensors.

A 9. Apparatus according to claim 6, ~~7 or 8~~, characterized in that the apparatus comprises a device for finding the movement of the surface in relation to the sensor array.

30 10. Apparatus according to claim 9, characterized in that the device comprises means for comparing the signals from the different lines of sensors to find the time lapse or spacial shift between the similar structures at the different sensor lines.

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11. Apparatus according to claim 6,  
characterized in that the conductors in the  
sensor array are placed essentially normal to the surface to  
be measured, and that one or more planes of constant voltage  
are placed close to and parallel to the conductors,  
extending essentially to the insulating layer.

12. Apparatus according to any one of claims 6-11,  
characterized in that the sensors also comprises  
electrodes being capable of measuring variations in the  
electric resistance along the sensor array.

13. Apparatus according to any one of claims 6-12, characterized in that the sensors also comprises optical detectors, and preferably optical transmitters.

14. Apparatus according to any one of claims 6-13,  
characterized in that the sensor array is made  
from a semiconducting material, preferably silicon.

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